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PCT/GB2004/005234

CLAIMS

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- The combination of a growth hormone secretagogue and a p38 kinase inhibitor for use in treatment or prevention of a disease associated with deposition of Aβ in the brain.
- 2. The use, for the manufacture of a medicament for treatment or prevention of a disease associated with deposition of $A\beta$ in the brain, of a growth hormone secretagogue and a p38 kinase inhibitor.

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- 3. Use according to claim 2 wherein the disease is Alzheimer's disease.
- 4. Use according to claim 3 wherein the medicament is for administration to a patient suffering from MCI.

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- 5. Use according to claim 4 wherein the patient additionally possesses one or more risk factors for developing AD selected from: a family history of the disease; a genetic predisposition to the disease; elevated serum cholesterol; adult-onset diabetes mellitus; elevated baseline hippocampal volume; elevated CSF levels of total tau; elevated CSF levels of phospho-tau; and lowered CSF levels of A β (1-42).
- 6. Use according to any of claims 2-5 wherein the growth hormone secretagogue is N-[1(R)-[(1,2-dihydro-1-methanesulfonylspiro[3H-indole-3,4'–piperidin]-1'-yl)carbonyl]-2-(phenylmethyloxy)ethyl]-2-amino-2-methylpropanamide, or pharmaceutically acceptable salt thereof.
- 7. Use according to any of claims 2-6 wherein the p38 kinase inhibitor is a compound of formula XI:

$$R^{1}$$
 R^{2}
 R^{2}
 R^{5}
 R^{5}
 R^{5}
 R^{5}
 R^{3}
 R^{4}
 R^{2}
 R^{3}
 R^{4}
 R^{4}
 R^{2}
 R^{5}

or pharmaceutically acceptable salts thereof, wherein Non-Ar-Cyc is

$$\begin{array}{c|c}
 & R^7 \\
 & (CH_2)_n \\
 & E^2 \\
 & (CH_2)_m
\end{array}$$

$$R^{77}$$
 $(CH_2)_{n'-1}$ $(CH_2)_{n''}$ R^7 $(CH_2)_{m'}$ $(CH_2)_{m''}$, or

$$R^{77}$$
 $(CH_2)_{n'}$ $(CH_2)_{n''}$ $(CH_2)_{m''}$ $(CH_2)_{m''}$ $(CH_2)_{m''}$

A is N, O, NH, CH2, or CH;

B is $-C_{1-6}$ alkyl-, $-C_{0-3}$ alkyl-O- C_{0-3} alkyl-, $-C_{0-3}$ alkyl-NH- C_{0-3} alkyl-NH- C_{0-3} alkyl-NH- C_{0-3} alkyl-NH- C_{0-3} alkyl-NH- C_{0-3} alkyl-, $-C_{0-3}$ alkyl-NH- C_{0-3} alkyl-, $-C_{0-3}$ alkyl-, $-C_{0-3}$ alkyl-S- C_{0-3} alkyl-, $-C_{0-3}$ alkyl-S- C_{0-3} alkyl-, $-C_{0-3}$ alkyl-PH- C_{0-3} alkyl-, $-C_{0-3}$ alkyl-C(O)- C_{0-3} alkyl-, or a direct bond;

D is CH, CH₂, N, or NH; optionally A and D are bridged by -C₁-4alkyl- to form a fused bicyclo ring with A and D at the bicyclo cusps;

E¹ is CH, N, or CR⁶; or B and E¹ form –CH=C<; E² is CH₂, CHR, C(OH)R NH, NR, O, S, –S(O)–, or –S(O)₂–; G¹ is N, CH, or C(C₁-3alkyl);

 G^2 is N, CH, or C(C₁₋₃alkyl);

R, R7 and R77 each independently is hydrogen, $C_{1-6alkyl-}$ group, $C_{2-6alkenyl-}$ group, $C_{4-6cycloalkyl-C_{0-6alkyl-}}$ group, $C_{0-4alkyl-}$ group, $C_{0-4alkyl-}$ group, $C_{0-4alkyl-}$ group, $C_{0-4alkyl-}$ group, $C_{0-4alkyl-}$ group, $C_{0-4alkyl-}$ group, $C_{0-6alkyl-}$ $C_{0-6alkyl-}$ group, C_{0-6a

or R^7 together with a bond from an absent ring hydrogen is =0; n' + n'' = n; m' + m'' = m; $n ext{ is } 1, 2, 3, \text{ or } 4$;

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m is 0, 1, 2, 3, or 4;
n+m is 2, 3, 4, 5, or 6;
p is 0, 1, 2, or 3;
R¹, R², R³, R⁴, and R⁶ are each independently halogen, C₀-₄alkyl, –

5 C(O)-O(C₀-₄alkyl), or –C(O)-N(C₀-₄alkyl)(C₀-₄alkyl);
R⁵ and R⁵⁵ independently is H, CH₃, CH₂CH₃, or absent;
Rଃ8 and Rଃ each is independently –CN, –C₀-₄alkyl, –C(O)-N(C₀-₄alkyl)(C₀-₄alkyl), –C(O)-O-C₀-₄alkyl or 1,3-dioxolan-2-yl-C₀-₄alkyl-;
R³ is –C₀-₄alkyl, or absent; and

10 any alkyl is optionally substituted with 1-6 independent halogen or -OH.

8. A pharmaceutical composition comprising in a pharmaceutically acceptable carrier, a growth hormone secretagogue and a p38 kinase inhibitor.

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- 9. A kit comprising a first medicament comprising a growth hormone secretagogue and a second medicament comprising a p38 kinase inhibitor together with instructions for administering said medicaments sequentially or simultaneously to a patient suffering from AD, age-related cognitive decline, MCI, cerebral amyloid angiopathy, multi-infarct dementia, dementia pugilistica or Down syndrome.
- 10. A method of treatment or prevention of a disease associated with deposition of $A\beta$ in the brain comprising administering to a subject in need thereof a therapeutically effective amount of a growth hormone secretagogue (GHS) in combination with a therapeutically effective amount of a p38 kinase inhibitor.